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As Addictive as Cigarettes and Cocaine: How Big Food Hooks Consumers on Junk Food

A growing body of research suggests big food brands are not only aware their chemically engineered products provoke overeating and addiction — they capitalize on it to drive sales, consciously harming health, according to U.S. Right to Know.

By U.S. Right to Know

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By Mikaela Conley

Ultra-processed foods are industrially formulated with added sugar, artificial sweeteners, additives and flavorings to be highly rewarding and even addictive.

They can alter the brain's reward pathways the same way that other addictive substances do, making them challenging to consume in moderation.

In fact, a body of scientific research has emerged in recent years to show that some ultra-processed foods can be as addictive as cigarettes and cocaine.

Several major food brands were once owned by the world's largest tobacco companies. Evidence suggests the same tactics used to formulate and market cigarettes were used in the creation of food products.

Finding the bliss point

Manufacturers of ultra-processed foods often seek to find the most alluring combination of salt, sugar and fat in their products. This point of perfection is known as "the bliss point," a term coined by American market researcher and food scientist Howard Moskowitz in the 1990s.

"The bliss point is just that sensory profile where you like food the most," Moskowitz, who is known for his work on soft drinks and pasta sauces, told RetroReport. "There is no one bliss point. There are groups of bliss points."

Manufacturers usually work to locate the bliss point through rigorous focus-group testing, alongside the use of psychological research.

The bliss point triggers dopamine — a neurotransmitter in the brain that is responsible for feelings of pleasure and well-being — to spike, then crash. This brings about good feelings, then bad feelings and generates the craving for more of those good feelings.

How ultra-processed food manufacturers addict consumers

Food companies not only research taste but also consumers' responses to the color, smell and "mouth feel" of products. And sometimes food scientists tweak a specific ingredient in products, like the salt, sugar or fat itself, Michael Moss writes in his book, "Salt Sugar Fat: How the Food Giants Hooked Us."

For example, food scientists have changed the shape of fat globules to improve how products feel in the mouth. And they've ground salt finer, which helps the flavor hit the taste buds faster for an "improved flavor burst."

"One hallmark of addiction is the speed with which substances hit the brain," Moss explains in his 2021 follow-up book, "Hooked: Food, Free Will, and How the Food Giants Exploit Our Addictions."

Moss said, "Measured in milliseconds, and the power to addict, nothing is faster than processed food in rousing the brain."

Along with speed, "addiction is also deeply enmeshed with memory, and the memories we create for food are typically stronger and longer lasting than any other substance. Childhood memories of food can wield an uncanny power over our eating habits for the rest of our lives."

Today, about 57% of the calories American adults consume comes from ultra-processed foods. That percentage rises to 67% in American children.

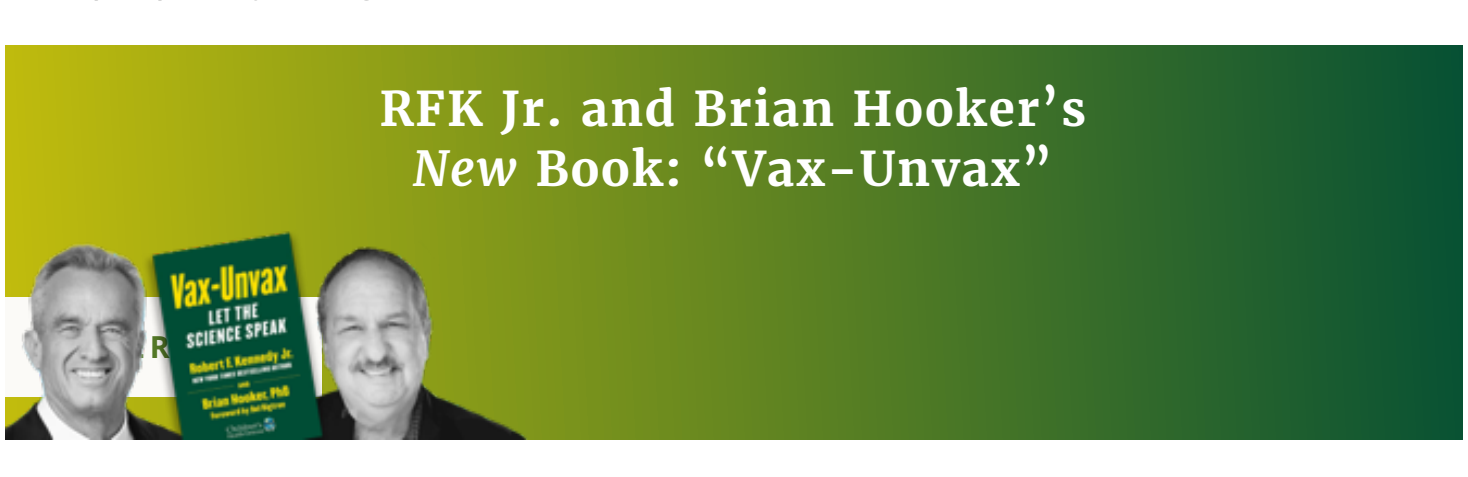
According to the UConn Rudd Center for Food Policy and Health, the food industry spends about $14 billion annually on advertising, with 80% of that devoted to highly processed foods and a significant portion toward advertising to children and racial minority groups.

Read the fact sheet on ultra-processed food and Type 2 diabetes. And see the other fact sheets on the studies that link ultra-processed foods to cancer, obesity and premature death.

Sen. Sanders' letter to the FDA about tough warning labels for ultra-processed foods

Sen. Bernie Sanders (VT), in a call for strong warning labels on ultra-processed foods to combat the obesity and diabetes epidemics in the U.S., wrote in a letter to the U.S. Food and Drug Administration (FDA) on Feb. 15:

> "For far too long, the food and beverage industry has been allowed to use deceptive and misleading tactics to entice children to eat foods and consume beverages loaded up with sugar, salt and saturated fats that are purposely designed to be overeaten."



Addicting consumers leads to poor public health

Tying together concerns around food addiction and rising rates of chronic diseases in the U.S., Ashley Gearhardt, professor of psychology at the University of Michigan and a leading expert in food addiction, wrote a 2023 testimony before the U.S. Senate Committee on Health, Education, Labor and Pensions titled, "What is Fueling the Diabetes Epidemic?"

Gearhardt said:

> "Scientific body of evidence suggests that addictive processes play an important role in contributing to patterns of ultra-processed food intake implicated in poor health, obesity, and diabetes.
>
> "If addictive mechanisms are being triggered by ultra-processed foods, this may be an overlooked reason why it can be challenging to reduce intake of ultra-processed foods even in the face of health conditions like diabetes."

What is the evidence that ultra-processed foods are addictive?

A 2023 review of 281 studies in 36 countries found that "the combination of refined carbohydrates and fats often found in ultra-processed foods seems to have a supra-additive effect on brain reward systems, above either macronutrient alone, which may increase the addictive potential of these foods."

Overall, the researchers found that 14% of adults and 12% of children were addicted to ultra-processed foods, which is "similar to the levels of addiction seen for other legal substances in adults (eg, 14% for alcohol and 18% for tobacco)," the authors added.

The research, published in The BMJ, noted: "The speed at which UPFs [ultra-processed foods] deliver carbohydrates and fats to the gut may also be important to their addictive potential. Drugs and routes of administration that affect the brain more quickly have a higher addictive potential."

The authors also noted the social justice implications of ultra-processed food addiction.

They wrote:

> "People facing food insecurity are more reliant on UPFs to meet their daily energy needs and are more likely to exhibit higher levels of UPF addiction."

In a study published in JAMA Psychiatry in 2011, researchers examined neural activity in 48 women with high "food addiction" (FA) scores using functional magnetic resonance imaging (fMRI).

They found that, while "there were limited differences in reward circuitry activation between participants with high FA and low FA during food intake, the high food addiction group exhibited patterns of neural activation associated with reduced inhibitory control."

This suggests "that consumption of a palatable food may override desires to limit caloric food consumption in participants with high FA, resulting in disinhibited food consumption."

The study authors concluded:

> "Similar patterns of neural activation are implicated in addictive-like eating behavior and substance dependence: elevated activation in reward circuitry in response to food cues and reduced activation of inhibitory regions in response to food intake."

Withdrawal is a key component of addiction. With this in mind, researchers conducted a review to determine whether highly processed (HP) foods are linked to withdrawal symptoms in animals and humans.

The research, published in the journal Obesity Reviews in 2022, found:

> "Evidence suggests that HP food withdrawal occurs in animals. Well-controlled experimental animal studies have demonstrated behavioral and biological indicators of HP food withdrawal, which follow a similar time course to other addictive substances.
>
> "Anecdotal and self-report evidence also suggests that humans experience withdrawal-like symptoms when they attempt to reduce their intake of HP foods."

In an editorial published in Psychotherapy and Psychosomatics, study authors wrote that the increase in ultra-processed foods consumption in the U.S. notably increased in the 1980s, when tobacco corporations bought major food companies, including General Foods and Kraft in the 1980s. The corporations soon became the largest manufacturers of ultra-processed foods.

In the commentary, which was published in 2022, they wrote that the same strategies used to market cigarettes were then used to advertise highly processed foods, particularly to children, by "reinforcing UPFs with optimal combinations of rewarding ingredients (e.g., fat, sugar) to maximize palatability and profitability."

It's also important to note "that food addiction is prevalent across weight classes (e.g., 12–17% of youths and adults with normal weight) and exhibits similar associations, regardless of BMI [body mass index], with addiction risk factors (e.g., impulsivity), poorer quality of life, compulsive eating behaviors, and increased physical and psychological comorbidities."

They concluded:

> "The lessons learned from past addiction epidemics are relevant for the negative public health consequences of food addiction and UPFs, particularly the need for policies that reduce the accessibility of UPFs in the modern food environment, reformulate UPFs to reduce their addictive potentials, and minimize risks for children and adolescents to develop food addiction."

"Ultraprocessed foods … were consistently more associated with [the Yale Food Addiction Scale or YFAS] indicators than were naturally occurring, minimally processed foods," according to the study authors of a review titled, "Is Food Addictive?," republished in 2021 in the Annual Review of Nutrition.

The authors stated:

> "Notably, ultraprocessed foods were significantly more problematic for individuals who endorsed experiencing elevated YFAS symptoms of addictive-like eating, providing further support for the role of ultraprocessed foods in food addiction."

They concluded:

> "As with addictive drugs, some (but not all) individuals exhibit an addictive pattern of consumption marked by diminished control over intake, intense cravings, and an inability to cut down despite negative consequences.
>
> "Higher YFAS scores are associated with mechanisms implicated in addictive disorders and poorer clinical outcomes."

In a study published in 2022 in the journal Appetite, researchers compared the consumption of ultra-processed food in 735 young Australian adults who had and did not have food addiction.

Researchers assessed foods as addictive according to the YFAS. They found that young adults who were food addicted ate more of their energy percentage (%E) from ultra-processed foods. Those who did not identify as food addicted ate a lower energy percentage from ultra-processed foods.

The study authors added:

> "For each additional food addiction symptom reported, the %E from ultra-processed foods was higher and %E from unprocessed foods was lower."

A 2022 national poll conducted by researchers at the University of Michigan Institute for Healthcare Policy and Innovation found that 1 in 8, or about 13%, of adults over the age of 50 displays signs of addiction to highly processed foods.

This was determined if the person had "two or more symptoms out of 11 plus significant impairment or distress."

The authors noted that 44% of the adults indicated at least one symptom of food addiction, the most common being intense cravings to processed foods.

Notably, "older adults who rated their mental health as fair or poor were at least three times more likely to meet food addiction criteria compared with those reporting excellent, very good, or good mental health."

The researchers added:

> "Many people report eating highly processed foods not only for the calories they provide, but also to experience pleasure and cope with negative emotions.
>
> "Cravings for highly processed foods can also be intense and challenging to resist, and people may experience withdrawal-like symptoms when they try to reduce the amount they consume."

A Brazilian-based cross-sectional study that included around 6,000 people examined whether consuming ultra-processed food was associated with food addiction. (The YFAS was used to determine food addiction in participants.)

The results, which were based on self-reported questionnaires and published in the journal Appetite in 2023, found that "individuals with food addiction had lower consumption of fresh fruits, vegetables, and beans. They also had higher consumption of ultra-processed foods: hamburgers/sausages, instant noodles, packaged snacks, and/or salty cookies, and sandwich cookies, sweets, and/or treats."

In an article published in 2020 in Nutrients, Dr. Robert H. Lustig wrote that the global pandemic of non-communicable diseases stems from markers of obesity and poor diet, and argued that ultra-processed foods should be regulated in the same way other addictive substances are regulated.

This is because they fall under the same four criteria (abuse, toxicity, ubiquity and externalities) that are considered by the public health community as "necessary and sufficient" for regulation.

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Of the addictive nature of ultra-processed foods, Lustig wrote:

> "Added sugar (and specifically the fructose moiety) is unique in activating reward circuitry; fructose works both directly and indirectly to increase consumption; and that both obesity and chronic fructose exposure down-regulate dopamine receptors, requiring greater and greater stimuli to enact a reward-signaling effect (tolerance), a primary component of addiction."

In a systematic review published titled "What Is the Evidence for Food Addiction?" scientists assessed 52 studies and 32 articles on processed food and addiction.

Their research, which was published in the journal Nutrients in 2018, found that:

> "Overall, the majority of the studies in the present systematic review evaluated foods with added sweeteners (e.g., sugar, saccharine), and many experiments combined sweeteners with fats such as hydrogenated oils or lard.
>
> "The current review found that the most common foods associated with addictive symptoms were those high in added fats and/or refined carbohydrates such as sugar."

When given the choice between saccharin-sweetened water and cocaine, rats are more likely to choose the sweeteners, according to a 2018 study published in PLoS One.

In the study, researchers tested rats that had never been fed refined sugars or sweeteners before. no prior experience with refined sugar or artificial sweeteners.

The authors stated:

> "Rats were allowed to choose mutually-exclusively between water sweetened with saccharin–an intense calorie-free sweetener–and intravenous cocaine–a highly addictive and harmful substance–the large majority of animals (94%) preferred the sweet taste of saccharin.
>
> "Importantly, each day before making their choices, rats were allowed to alternatively sample [the other option] learn their respective reward value."

The researchers concluded: "Our findings clearly demonstrate that intense sweetness can surpass cocaine reward, even in drug-sensitized and -addicted individuals."

How Big Tobacco acquired Big Food

In the late 1980s, major tobacco corporations like R.J. Reynolds and Philip Morris (now Altria) acquired and owned several Big Food brands, including Kraft, Nabisco and General Mills.

At this time, Big Tobacco began to change and reformulate these food products, using the same tactics in targeted marketing and formulation of their tobacco products, with an increase in colors, flavors and additives, to create more appealing and addictive processed foods. This also included food specifically marketed to children.

Though these tobacco companies have severed ties with food corporations, many of these processed food formulations remain.

A 2023 research report published in the journal Addiction found that:

> "Tobacco-owned foods were 29% more likely to be classified as fat and sodium hyper-palatable food (HPF) and 80% more likely to be classified as carbohydrate and sodium HPF than foods that were not tobacco-owned between 1988 and 2001.
>
> "The availability of fat and sodium HPF and carbohydrate and sodium HPF was high in 2018 regardless of prior tobacco-ownership status, suggesting widespread saturation into the food system."

Using criteria for tobacco addiction to measure food addiction

In 1988, the Surgeon General concluded that cigarettes and other tobacco products are addictive by using three criteria: "(1) they trigger compulsive use, (2) they have psychoactive effects and (3) they are reinforcing," writes Gearhardt in a 2022 analysis published in Addiction.

And since then, a fourth criterion was also added to addictive identification — the product's ability to "trigger strong urges or craving".

Using this same standard of criteria for tobacco products, Gearhardt argues that ultra-processed foods can be considered addictive.

And, "to identify the key addictive components in [highly processed foods], the same care and control employed in understanding the addictive potential of drugs needs to be applied to studies of [highly processed foods]."

The Yale Food Addiction Scale (YFAS)

Because food addiction has been controversial to define, Gearhardt, then a doctoral student at Yale University, created the YFAS in 2009 as a standardized tool to measure the signs of addictive eating behaviors.

The self-reported questionnaire uses questions based on criteria used for substance disorders in the Diagnostic and Statistical Manual of Mental Disorders.

It is meant to evaluate behavior with questions similar to those that would ask about other substance abuse issues, including drugs and alcohol, regarding cravings, withdrawal symptoms and failed efforts to stop.

The scale has become a staple for food research around the world and has been translated into many languages.

Gearhardt explained to the Guardian, "I took the standard diagnostic criteria for alcohol, nicotine, cocaine and heroin, and translated them to food."

The YFAS is the basis for much of the research conducted on food addiction in the past 15 years.

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John Hanek
2 months ago
You MUST eat what God gives us in nature if you desire good health. Man's chemical-laden garbage, so-called "food" kills you slowly. Almost 70yo I have no chronic conditions and no ailments. The most processed food I eat is Adams 100% Natural Peanut Butter. (Only has one ingredient).
6 0 Reply

BChristine
2 months ago
It's all by design ... make cheap, toxic, addictive "food" that BIG Ag can profit from; then after people are sick and fat enough, let BIG Pharma take over dishing out their toxic drugs. It's a merry-go-round that profits the BIG corporations who own everything - including the government. SHAMEFUL.
2 0 Reply

tag
2 months ago edited
Maybe not revealment but as an animal lover and 50 years career in animal care, have always wondered why many if not most Vets still recommend kibble over "people food" So...better to feed your best friend food not fit for human consumption over food fit for human consumption? Probably why I don't trust the medical field anymore including the veterinary field. Profit over life. PATHETIC!
2 0 Reply

unacceptable views
2 months ago
The creation of highly processed addictive phoods is a great way to keep people dependent on the system. Big Pharma and Big Medicine make bank off the backs of the eaters of this phood. No critical thinker should ever be surprised as to why we have such high rates of dementia along with diabetes, heart disease and obesity, it's a culling and it's by design. You are what you eat after all.
1 0 Reply

shasta.o
2 months ago
So the buns are formulated along with the ketchup and mustard, et al, with the meat product, to tantalize in a 'just right' fashion... Wow. That's a lot of experimentation. I guess it's worth $ it!
1 0 Reply

jann
2 months ago
Genesis 1:29

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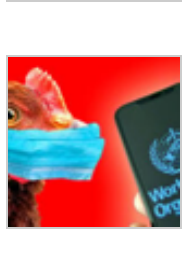
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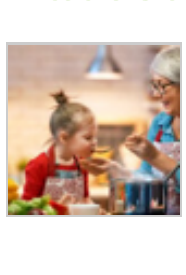
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